April 8, 1965

STAT

GREEN LASER

STAT has succeeded in making Argon lase and produce a coherent beam in the blue green spectral region. (Several others have also succeeded such as STAT but their devices are not on the market.)

STAT is located in the STAT STAT across the street from STAT They specialize in large, high-voltage installations for High-Power electronics and employ about 130 people.

STAT started working on lasers for them several years ago. When STAT joined the company last year, STAT STAT formed a subsidiary company called STAT for the laser work. They have about ten people in STAT

STAT produces both CW and pulse lasers covering wave lengths from 3511 Angstroms ultraviolet through green, yellow, orange, and red on into the infra red to 12066 Angstroms or further. They have certain basic laser designs with interchangeable mirrors and plasma tubes. Various combinations of mirrors and plasma tubes will produce various colors and combinations of spectral lines. The CW lasers are pretty touchy and short lived, but the pulsed lasers are reputedly more stable and reliable. The Argon lasers are not as well developed for routine use as the Helium/Neon gas lasers.

STAT The STAT Model 3355 blue green Argon laser appears to be most applicable. It is a pulsed laser with three microsecond pulses at 120 pulses per second. (It can be driven faster if desired.) It produces six spectral lines simultaneously: 4579, 4658, 4765, 4880, 4965, and 5145 Angstroms, with one milliwatt average power output, (one watt peak power output). The STAT price is about STAT To obtain the 3545 Angstrom ultra-violet line requires a different set of mirrors which cost STAT an additional STAT

Declass Review by NGA.

The Model 3400 CW Argon laser, which has a one watt blue green beam, is a very large and powerful instrument. It uses a 25 KVA power supply which runs off a 220-volt, 3-phase line. The beam is so powerful it is dangerous around a lab. Price of the Model 3400 is about [redacted] STAT

These people have a thorough grasp of the fundamentals of a coherent light beam and its properties. I think they could shed some analytical light on why the laser enlarger does not produce the modulation transfer function response expected of it. They pointed out to me, for example, that normal laser beam coherence is adequate for most purposes. For hologram work, however, extreme measures must be taken to control phase. I suspect the phase sensitivity of the laser enlarger is similar to that of holograms. Spectral side bands due to the doppler spread and spectral shifts due to vibration of the plasma tube are candidates for suspicion in the coherence and phasing problem.

I talked to the people at Stanford University who had purchased a CW Argon laser from [redacted] in January, 1965. STAT
STAT Professor [redacted] referred me to his graduate
STAT student, [redacted], who was conducting their experiments. They bought only the plasma tube and did their own mirror mounting and electronics. They had a lot of trouble with the laser which they attributed mostly to their own set-up. They found it difficult to get coherent CW lasing. Also, they are operating near threshold to conserve tube life. They have about 20 hours on the tube and expect it to go any time. A plasma tube runs about [redacted] STAT

The Argon CW blue green laser is in my opinion not yet an instrument for general routine use but it is developing fast. Further usage information is needed on the Argon pulsed blue green laser.

STAT Enclosed is the [redacted] catalogue. Note that in section 8
STAT they say that [redacted] has one of their pulsed UV lasers.

[redacted] STAT

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Enc.